

A white Tesla Model S is parked on a grassy field. The car is positioned in the lower-left to center area of the frame. The background features a dense forest of green trees under a blue sky with some clouds. A semi-transparent teal and blue gradient overlay covers the top half of the image, serving as a background for the text.

Tesla Inc.

Company valuation

A detailed walkthrough

	Data Source	Where to find it
1	Historical production data	https://cleantechnica.com/2017/01/03/teslas-2016-deliveries-production/ http://ir.tesla.com/releasedetail.cfm?releaseid=1053245 http://ir.tesla.com/news-releases/news-release-details/tesla-q3-2018-vehicle-production-and-deliveries
2	Download Solar City financials prior the merger	https://www.sec.gov/Archives/edgar/data/1408356/000156459016012549/scty-10k_20151231.htm https://www.sec.gov/Archives/edgar/data/1408356/000156459017003084/scty-10k_20161231.htm
3	Tesla annual reports	http://www.annualreports.com/HostedData/AnnualReportArchive/t/NASDAQ_TSLA_2016.pdf http://www.annualreports.com/HostedData/AnnualReportArchive/t/NASDAQ_TSLA_2015.pdf http://www.annualreports.com/HostedData/AnnualReports/PDF/NASDAQ_TSLA_2017.pdf
4	Yahoo finance – Tesla’s company profile (beta)	https://finance.yahoo.com/quote/TSLA/
5	Yield to maturity data – Cost of debt	https://www.bondsupermart.com/main/bond-info/bond-factsheet/USU8810LAA18
6	Current Tesla prices	https://www.truecar.com/prices-new/tesla/
7	Q3 2018 Earnings call transcript	https://www.fool.com/earnings/call-transcripts/2018/10/25/tesla-motors-inc-tsla-q3-2018-earnings-conference.aspx

Input



Drivers

Selected case	2
Corporate tax rate	30%
Expected inflation	2%
Currency	USD
Domestic country	United States
10-year treasury yield (Aug 24 2018)	2.82%
Market risk premium US	5%
Company beta (Aug 24 2018)	0.83
Tesla share price (Aug 24 2018)	322.8
Bond Yield (Aug 19 2018)	7.10%
Statutory tax rate	30%

US 10-YR (US10Y:U.S.)

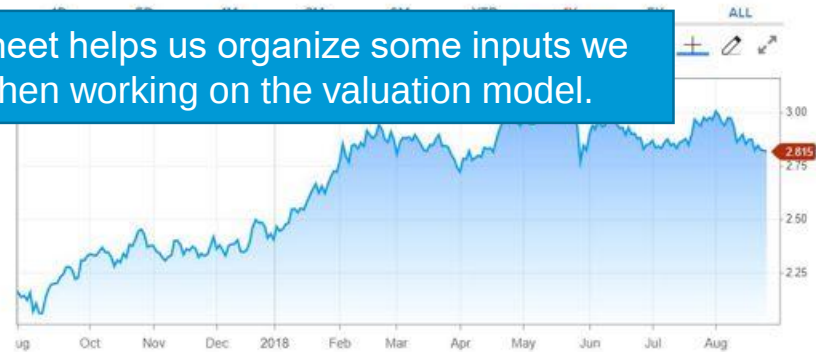
Real Time Quote | Exchange

Yield | 2:05:05 AM EDT

2.815 % -0.011

 WATCHLIST

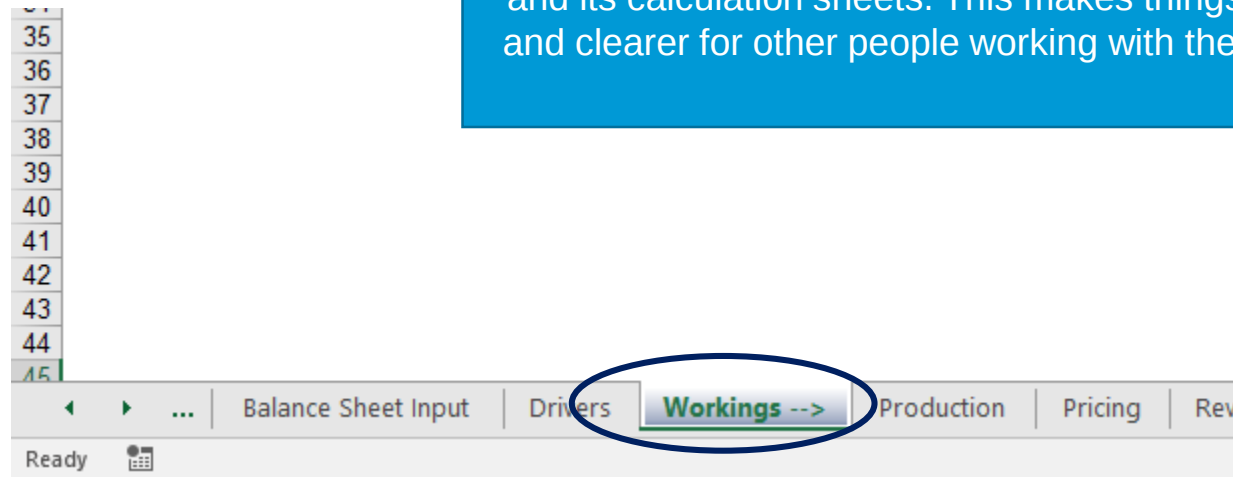
A “Drivers” sheet helps us organize some inputs we will need when working on the valuation model.





Workings

The “Workings” sheet serves as a section divider in our model. It helps us distinguish the model’s inputs and its calculation sheets. This makes things easier and clearer for other people working with the model.



Tesla valuation – Deliveries sheet

1

Deliveries

2

3

4

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9

10

11

13

15

16

17

18

19

20

21

22

Tesla Deliveries

2014

2015

2016

2017

2018 H1

2018 H2

2018

2019

2020

Act

Act

Act

Act

Act

Fcst

Fcst

Fcst

Fcst

Vehicle

Tesla Model 3

Tesla Model S and X

Tesla Model Y

Tesla Roadster 2

Tesla Pickup

Tesla Semi

Total

y-o-y growth %

Tesla Model 3

Tesla Model S and X

Tesla Model Y

Tesla Roadster 2

Tesla Pickup

Tesla Semi

-

33 600

-

-

-

-

33 600

n.a.

n.a.

n.a.

n.a.

n.a.

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50 580

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51%

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We analyzed Tesla's historical deliveries of three main groups of products

Model S and Model X – established models with strong market performance

Model 3 – the first mass market electric vehicle

Other vehicles to be released in future (Tesla Semi, Model Y etc.)

We analyzed Tesla's historical deliveries of three main groups of products:

- Model S and Model X – established models with strong market performance
- Model 3 – the first mass market electric vehicle
- Other vehicles to be released in future (Tesla Semi, Model Y etc.)

Tesla valuation – Deliveries sheet

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1		Deliveries													
2															
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22															
23															

	2014	2015	2016	2017	2018 H1	2018 H2	2018	2019	2020	2021	2022	2023	2024
Vehicle	Act	Act	Act	Act	Act	Fcst	Fcst	Fcst	Fcst	Fcst	Fcst	Fcst	Fcst
Tesla Model 3	-	-	-	1 764	26 620	104 000	130 620	260 000	416 000	457 600	503 360	528 528	554 954
Tesla Model S and X	33 600	50 580	76 230	101 312	44 100	55 900	100 000	102 000	104 040	106 121	108 243	110 408	112 616
Tesla Model Y	-	-	-	-	-	-	-	1 764	130 620	260 000	416 000	457 600	503 360
Tesla Roadster 2	-	-	-	-	-	-	-	-	500	1 000	1 500	1 650	1 815
Tesla Pickup	-	-	-	-	-	-	-	250	18 512	36 848	58 957	64 853	71 338
Tesla Semi	-	-	-	-	-	-	-	250	18 512	36 848	58 957	64 853	71 338
Total	33 600	50 580	76 230	103 076	70 720	159 900	230 620	364 264	688 184	898 417	1 147 017	1 227 891	1 315 421

y-o-y growth	2014	2015	2016	2017	2018 H1	2018 H2	2018	2019	2020	2021	2022	2023	2024
Tesla Model 3								7305%	99%	60%	10%	10%	5%
Tesla Model S and X								-1%	2%	2%	2%	2%	2%
Tesla Model Y								n.a.	n.a.	7305%	99%	60%	10%
Tesla Roadster 2								n.a.	n.a.	n.a.	100%	50%	10%
Tesla Pickup								n.a.	n.a.	7305%	99%	60%	10%
Tesla Semi								n.a.	n.a.	7305%	99%	60%	10%

Then, we used this data to project year-on-year growth rates. For Model 3 and Other vehicles, we assumed a strong initial growth and a gradual normalization throughout the forecast period.

Tesla valuation – Revenue automotive

[illegible]

Tesla valuation – Pricing

Revenue Automotive

Vehicle	Tesla Revenue Automotive (in mln \$)															Average Price (\$)
	2014 Act	2015 Act	2016 Act	2017 Act	2018 Fcst	2019 Fcst	2020 Fcst	2021 Fcst	2022 Fcst	2023 Fcst	2024 Fcst	2025 Fcst	2026 Fcst	2027 Fcst	2028 Fcst	
Tesla Model 3				n.a.	5 486	10 920	17 472	19 219	21 141	22 198	23 308	23 774	24 250	24 735	25 229	42 000
Tesla Model S and X	3 007	3 741	6 351	n.a.	8 750	8 925	9 104	9 286	9 471	9 661	9 854	10 051	10 252	10 457	10 666	87 500
Tesla Model Y	-	-	-	-	-	88	6 531	13 000	20 800	22 880	25 168	26 426	27 748	28 303	28 869	50 000
Tesla Roadster 2	-	-	-	-	-	-	115	230	345	380	417	438	460	469	479	230 000
Tesla Pickup	-	-	-	-	-	16	1 166	2 321	3 714	4 086	4 494	4 719	4 955	5 054	5 155	63 000
Tesla Semi	-	-	-	-	-	50	3 702	7 370	11 791	12 971	14 268	14 981	15 730	16 045	16 365	200 000
Total	3 007	3 741	6 351	9 641	14 236	19 999	38 090	51 426	67 263	72 175	77 509	80 390	83 395	85 063	86 764	
Selected case																
Tesla Model 3					100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Tesla Model S and X					100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Tesla Model Y					100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
								100%	100%	100%	100%	100%	100%	100%	100%	100%
								100%	100%	100%	100%	100%	100%	100%	100%	100%
								100%	100%	100%	100%	100%	100%	100%	100%	100%
								100%	100%	100%	100%	100%	100%	100%	100%	100%

Average price assumed based on Cleantechnica's analysis:

<https://cleantechnica.com/2017/12/25/tesla-vehicle-revenue-2022-73-7-billion/>

Tesla valuation – Pricing sheet

Revenue Automotive

Vehicle	Tesla Revenue Automotive (in mln \$)														
	2014 Act	2015 Act	2016 Act	2017 Act	2018 Fcst	2019 Fcst	2020 Fcst	2021 Fcst	2022 Fcst	2023 Fcst	2024 Fcst	2025 Fcst	2026 Fcst	2027 Fcst	2028 Fcst
Tesla Model 3				n.a.	5 486	10 920	17 472	19 219	21 141	22 198	23 308	23 774	24 250	24 735	25 229
Tesla Model S and X	3 007	3 741	6 351	n.a.	8 750	8 925	9 104	9 286	9 471	9 661	9 854	10 051	10 252	10 457	10 666
Tesla Model Y	-	-	-	-	-	88	6 531	13 000	20 800	22 880	25 168	26 426	27 748	28 303	28 869
Tesla Roadster 2	-	-	-	-	-	-	115	230	345	380	417	438	460	469	479
Tesla Pickup	-	-	-	-	-	16	1 166	2 321	3 714	4 086	4 494	4 719	4 955	5 054	5 155
Tesla Semi	-	-	-	-	-	50	3 702	7 370	11 791	12 971	14 268	14 981	15 730	16 045	16 365
Total	3 007	3 741	6 351	9 641	14 236	19 999	38 090	51 426	67 263	72 175	77 509	80 390	83 395	85 063	86 764
Selected case															
Tesla Model 3					100%							100%	100%	100%	100%
Tesla Model S and X					100%							100%	100%	100%	100%
Tesla Model Y					100%							100%	100%	100%	100%
Tesla Roadster 2					100%							100%	100%	100%	100%
Tesla Pickup					100%							100%	100%	100%	100%
Tesla Semi					100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Best case															
Tesla Model 3					102%	102%	102%	102%	102%	102%	102%	102%	102%	102%	102%
Tesla Model S and X					102%	102%	102%	102%	102%	102%	102%	102%	102%	102%	102%
Tesla Model Y					102%	102%	102%	102%	102%	102%	102%	102%	102%	102%	102%
Tesla Roadster 2					102%	102%	102%	102%	102%	102%	102%	102%	102%	102%	102%
Tesla Pickup					102%	102%	102%	102%	102%	102%	102%	102%	102%	102%	102%
Tesla Semi					102%	102%	102%	102%	102%	102%	102%	102%	102%	102%	102%
Base case															
Tesla Model 3					100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Tesla Model S and X					100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Tesla Model Y					100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Tesla Roadster 2					100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Tesla Pickup					100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Tesla Semi					100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Assuming prices will increase (best case), stay the same (base case), or decrease (worst case)

Tesla valuation – Revenues sheet

[illegible]

GP %

Comparables

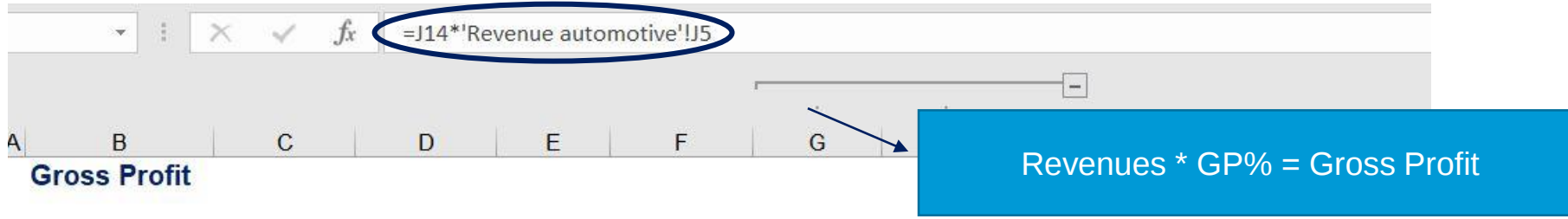
Vehicle	Comparable companies	GP %	GP %	GP %	Average
		Comp. 1	Comp. 2	Comp. 3	
Tesla Model 3	GM, Ford, Fiat Chrysler	13.9%	7.9%	15.3%	12.4%
Tesla Model S and X	BMW, Mercedes Cars, Volkswagen	18.4%	20.8%	18.4%	19.2%
Tesla Model Y	BMW, Mercedes Cars, Volkswagen	18.4%	20.8%	18.4%	19.2%
Tesla Roadster 2	Jaguar, Porsche, Ferrari	38.1%	28.2%	51.7%	39.3%
Tesla Pickup	GM, Ford, Fiat Chrysler	13.9%	7.9%	15.3%	12.4%
Tesla Semi	Scania, MAN, Paccar	24.6%	18.6%	14.3%	19.2%

Historical

Vehicle	Average
Tesla Model 3	n.a.
Tesla Model S and X	25%
Tesla Model Y	n.a.
Tesla Roadster 2	n.a.
Tesla Pickup	n.a.
Tesla Semi	n.a.

Studying competitors' margins allows us to make an assumption about Tesla's future margins

Tesla valuation – Margins automotive



Excel formula bar: `=J14*Revenue automotive'`

Blue callout box: $\text{Revenues} * \text{GP\%} = \text{Gross Profit}$

Tesla Gross Profit (in mln \$)									
Vehicle	2014 Act	2015 Act	2016 Act	2017 Act	2018 H1 Act	2018 H2 Fcst	2018 Fcst	2019 Fcst	2020 Fcst
Tesla Model 3	n.a.	n.a.	n.a.	n.a.	n.a.	541	n.a.	1 352	2 163
Tesla Model S and X	n.a.	n.a.	n.a.	n.a.	n.a.	940	n.a.	1 715	1 749
Tesla Model Y	-	-	-	-	-	-	-	17	1 255
Tesla Roadster 2	-	-	-	-	-	-	-	-	45
Tesla Pickup	-	-	-	-	-	-	-	2	144
Tesla Semi	-	-	-	-	-	-	-	10	710
Total	861	918	1 601	2 209	1 230	1 481	2 711	3 095	6 066

Selected case

Tesla valuation – Cost of sales

Calculate Cost of sale automotive:
Cost of sales = - (Revenues – Margins)

Excel formula bar: `=-(Revenue automotive'IJ5-'GP automotive'IJ5)`

Cost of sales automotive

Vehicle	Tesla Gross Profit (in mln \$)							
	2014	2015	2016	2017	2018	2019	2020	2021
	Act	Act	Act	Act	Fcst	Fcst	Fcst	Fcst
Tesla Model 3	n.a.	n.a.	n.a.	n.a.	n.a.	(9 568)	(15 309)	(16 840)
Tesla Model S and X	n.a.	n.a.	n.a.	n.a.	n.a.	(7 210)	(7 354)	(7 501)
Tesla Model Y	-	-	-	-	-	(71)	(5 276)	(10 502)
Tesla Roadster 2	-	-	-	-	-	-	(70)	(140)
Tesla Pickup	-	-	-	-	-	(14)	(1 022)	(2 034)
Tesla Semi	-	-	-	-	-	(40)	(2 993)	(5 957)
Total	(2 146)	(2 823)	(4 750)	(7 433)	(11 525)	(16 904)	(32 024)	(42 974)

Tesla valuation – Revenue Energy & Other

Revenue Energy & Other

	Tesla Revenue Energy & Other (in mln \$)														
(\$ in million)	2014 Act	2015 Act	2016 Act	2017 Act	2018 Fcst	2019 Fcst	2020 Fcst	2021 Fcst	2022 Fcst	2023 Fcst	2024 Fcst	2025 Fcst	2026 Fcst	2027 Fcst	2028 Fcst
Energy generation and storage	4	14	181	1 116	1 569	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Services and other	187	291	468	1 001	1 067	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total Energy and Other	191	305	649	2 117	2 636	3 058	3 425	3 699	3 921	4 156	4 405	4 669	4 950	5 247	5 561
SolarCity	255	400	730	-	-	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total Energy and Other + SolarCity	446	705	1 380	2 117	2 636	3 058	3 425	3 699	3 921	4 156	4 405	4 669	4 950	5 247	5 561
Selected case															
Total Energy and Other						16%	12%	8%	6%	6%	6%	6%	6%	6%	6%
Y-o-Y %															
Best case															
Total Energy and Other		60%	98%	55%		18%	14%	10%	8%	8%	8%	8%	8%	8%	8%
Base case															
Total Energy and Other		58%	96%	53%		16%	12%	8%	6%	6%	6%	6%	6%	6%	6%
Worst case															
Total Energy and Other		56%	94%	51%		14%	10%	6%	4%	4%	4%	4%	4%	4%	4%

Add Solar City revenues to the Energy generation and Storage figures and calculate historical revenue growth of the combined units to account for the Solar City merger. Then use these figures to project year on year growth rates.

Tesla valuation – Margins Energy & Other

Gross Profit Energy & Other

	Tesla GP% Energy and Other (in mln \$)														
	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
(\$ in million)	Act	Act	Act	Act	Fcst	Fcst	Fcst	Fcst	Fcst	Fcst	Fcst	Fcst	Fcst	Fcst	Fcst
Energy generation and storage	0	2	3	242	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Services and other	20	4	(4)	(228)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total Energy and Other	20	6	(1)	14	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
SolarCity	79	119	251	-	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total Energy and Other + SolarCity	99	125	250	14	386	448	502	542	575	609	646	685	726	769	815
Selected case															
Total Energy and Other	22%	18%	18%	1%	15%									15%	15%
GP%															
Best case															
Total Energy and Other					17%									17%	17%
Base case															
Total Energy and Other					15%									15%	15%
Worst case															
Total Energy and Other					13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%

Forecast Gross Profit for the entire Energy & Other business line at a total level. There isn't another way to do this, as there is limited data on different product lines that are part of this BU

Tesla valuation – Opex

Opex

	Tesla Opex (in mln \$)														
	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
(\$ in million)	Act	Act	Act	Act	Fcst	Fcst	Fcst	Fcst	Fcst	Fcst	Fcst	Fcst	Fcst	Fcst	Fcst
Revenues	3 453	4 448	7 730	11 759	17 988	23 057	41 515	55 124	71 184	76 330	81 914	85 059	88 344	90 309	92 325
Opex as a % of revenues	-30.9%	-36.9%	-29.3%	-32.8%		-12.5%	-12.5%	-12.5%	-12.5%	-12.5%	-12.5%	-12.5%	-12.5%	-12.5%	-12.5%
Opex	(1 068)	(1 640)	(2 267)	(3 855)	(5 095)	(2 880)	(5 186)	(6 886)	(8 892)	(9 535)	(10 233)	(10 625)	(11 036)	(11 281)	(11 533)
Selected case															
Opex as a % of revenue							-12%	-12%	-12%	-12%	-12%	-12%	-12%	-12%	-12%
Opex %															
Best case															
Opex as a % of revenue							-10%	-10%	-10%	-10%	-10%	-10%	-10%	-10%	-10%
Base case															
Opex as a % of revenue							-12%	-12%	-12%	-12%	-12%	-12%	-12%	-12%	-12%
Worst case															
Opex as a % of revenue							-14%	-14%	-14%	-14%	-14%	-14%	-14%	-14%	-14%

Calculate Opex as a % of Revenues

We assume Tesla will improve its Opex efficiency once the “production hell experienced in 2017 and 2018” gets resolved and they can focus on Opex efficiencies. There is no reason their Opex spending shouldn’t be in line with the percentage larger auto producers spend on average.

Tesla valuation – Fixed asset roll forward

Fixed asset roll forward

Selected case: as a % of PPE

1

Historical D&A figures taken from Tesla's annual reports (cash flow section)

Tesla PP&E (in mln \$)										
	31Dec2014	31Dec2015	31Dec2016	31Dec2017	30Jun2018	2018 H2	31Dec2018	31Dec2019	31Dec2020	31Dec2021
(\$ in million)	Act	Act	Act	Act	Act	Fcst	Fcst	Fcst	Fcst	Fcst
Beginning PP&E	738	1 829	3 403	5 983	10 028	10 969	10 028	14 499	18 945	22 896
Capex	1 323	1 997	3 527	5 211	1 843	4 173	6 017	5 799	5 683	4 579
D&A	(232)	(423)	(947)	(1 166)	(901)	(644)	(1 545)	(1 353)	(1 732)	(2 037)
Ending PP&E	1 829	3 403	5 983	10 028	10 969	14 499	14 499	18 945	22 896	25 438

Tesla D&A (in mln \$)										
	2014	2015	2016	2017	2018 H1	2018 H2	2018	2019	2020	2021
(\$ in million)	Act	Act	Act	Act	Act	Fcst	Fcst	Fcst	Fcst	Fcst
2018 H2Fcst						(644)				
2018Fcst							(1 545)			
2019Fcst								(1 353)		(1 353)
2020Fcst									(379)	(379)
2021Fcst										(305)
2022Fcst										
2023Fcst										
2024Fcst										
2025Fcst										
2026Fcst										
2027Fcst										
2028Fcst										
Total D&A	(232)	(423)	(947)	(1 166)	(901)	(644)	(1 545)	(1 353)	(1 732)	(2 037)

Tesla valuation – Fixed asset roll forward

Fixed asset roll forward

Selected case: as a % of PPE

1

	Tesla PP&E (in mln \$)									
(\$ in million)	31Dec2014 Act	31Dec2015 Act	31Dec2016 Act	31Dec2017 Act	30Jun2018 Act	2018 H2 Fcst	31Dec2018 Fcst	31Dec2019 Fcst	31Dec2020 Fcst	31Dec2021 Fcst
Beginning PP&E	738	1 829	3 403	5 983	10 028	10 969	10 028	14 499	18 945	22 896
Capex	1 323	1 997	3 527	5 211	1 843	4 173	6 017	5 799	5 683	4 579
D&A	(232)	(423)	(947)	(1 166)	(901)	(644)	(1 545)	(1 353)	(1 732)	(2 037)
Ending PP&E	1 829	3 403	5 983	10 028	10 969	14 499	14 499	18 945	22 896	25 438

	Tesla D&A (in mln \$)									
(\$ in million)	2014 Act	2015 Act	2016 Act	2017 Act	2018 H1 Act	2018 H2 Fcst	2018 Fcst	2019 Fcst	2020 Fcst	2021 Fcst
2018 H2Fcst						(644)				
2018Fcst							(1 545)			
2019Fcst								(1 353)	(1 353)	(1 353)
2020Fcst									(379)	(379)
2021Fcst										(305)
2022Fcst										
2023Fcst										
2024Fcst										
2025Fcst										
2026Fcst										
2027Fcst										
2028Fcst										
Total D&A	(232)	(423)	(947)	(1 166)	(901)	(644)	(1 545)	(1 353)	(1 732)	(2 037)

Calculate historical Capex as:
 Ending PP&E – Beginning PP&E – D&A
 (because we have the formula
 Beginning PP&E + Capex – D&A = Ending PP&E)

Tesla valuation – Fixed asset roll forward

Fixed asset roll forward

Selected case: as a % of PPE

1

	Tesla PP&E (in mln \$)									
(\$ in million)	31Dec2014 Act	31Dec2015 Act	31Dec2016 Act	31Dec2017 Act	30Jun2018 Act	2018 H2 Fcst	31Dec2018 Fcst	31Dec2019 Fcst	31Dec2020 Fcst	
Beginning PP&E	738	1 829	3 403	5 983	10 028	10 969	10 028	14 499	18 945	
Capex	1 323	1 997	3 527	5 211	1 843	4 173	6 017	5 799	5 683	
D&A	(232)	(423)	(947)	(1 166)	(901)	(644)	(1 545)	(1 353)	(1 732)	
Ending PP&E	1 829	3 403	5 983	10 028	10 969	14 499	14 499	18 945	22 896	

	Tesla D&A (in mln \$)									
(\$ in million)	2014 Act	2015 Act	2016 Act	2017 Act	2018 H1 Act	2018 H2 Fcst	2018 Fcst	2019 Fcst	2020 Fcst	
2018 H2Fcst						(644)				
2018Fcst							(1 545)			
2019Fcst								(1 353)	(1 353)	
2020Fcst									(379)	
2021Fcst										
2022Fcst										
2023Fcst										
2024Fcst										
2025Fcst										
2026Fcst										
2027Fcst										
2028Fcst										
Total D&A	(232)	(423)	(947)	(1 166)	(901)	(644)	(1 545)	(1 353)	(1 732)	
D&A as a % of PP&E	-31.4%	-23.1%	-27.8%	-19.5%	-9.0%	-25.5%	-25.5%	-25.5%	-25.5%	
D&A as a % of revenues	-7.3%	-10.4%	-13.5%	-9.9%	-12.1%	-6.1%	-8.6%	-5.9%	-4.2%	
Capex as a % of PP&E	179.1%	109.2%	103.6%	87.1%	16.4%	99.5%	60.0%	40.0%	30.0%	
Capex as a % of revenues	41.4%	49.3%	50.4%	44.3%	24.9%	42.1%	42.1%	42.1%	20.0%	

Create scenarios
assuming different
levels of Capex
spending

Tesla valuation – Fixed asset roll forward

Tesla PP&E (in mln \$)										
31Dec2018	31Dec2019	31Dec2020	31Dec2021	31Dec2022	31Dec2023	31Dec2024	31Dec2025	31Dec2026	31Dec2027	31Dec2028
Fcst	Fcst	Fcst	Fcst	Fcst	Fcst	Fcst	Fcst	Fcst	Fcst	Fcst
10 028	14 499	18 945	22 896	25 438	26 962	28 445	29 866	31 201	32 425	33 508
6 017	5 799	5 683	4 579	3 816	4 044	4 267	4 480	4 680	4 864	5 026
(1 545)	(1 353)	(1 732)	(2 037)	(2 292)	(2 561)	(2 846)	(3 145)	(3 457)	(3 781)	(4 116)
14 499	18 945	22 896	25 438	26 962	28 445	29 866	31 201	32 425	33 508	34 418
Tesla D&A (in mln \$)										
2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Fcst	Fcst	Fcst	Fcst	Fcst	Fcst	Fcst	Fcst	Fcst	Fcst	Fcst
(1 545)	(1 353)									
		(379)	(379)	(379)	(379)	(379)	(379)	(379)	(379)	(379)
			(305)	(305)	(305)	(305)	(305)	(305)	(305)	(305)
				(254)	(254)	(254)	(254)	(254)	(254)	(254)
					(270)	(270)	(270)	(270)	(270)	(270)
						(284)	(284)	(284)	(284)	(284)
							(299)	(299)	(299)	(299)
								(312)	(312)	(312)
									(324)	(324)
										(335)
(1 545)	(1 353)	(1 732)	(2 037)	(2 292)	(2 561)	(2 846)	(3 145)	(3 457)	(3 781)	(4 116)

Calculate annual depreciation in the following way:
 First component: Ending PP&E 2018 / Useful life historical assets
 Second component: Capex/Useful life Capex

Tesla valuation – Working capital

Working capital

	Tesla Working capital (in mln \$)									
	31Dec2014	31Dec2015	31Dec2016	31Dec2017	30Jun2018	31Dec2018	31Dec2019	31Dec2020	31Dec2021	
(\$ in million)	Act	Act	Act	Act	Act	Fcst	Fcst	Fcst	Fcst	
Trade receivables	227	169	499	515	570	1 096	1 405	2 529	3 359	
Inventory	954	1 278	2 067	2 264	3 325	5 854	7 672	13 740	18 137	
Trade payables	778	916	1 860	2 390					15 709	
Net trade cycle	402	531	706	389					5 787	
Selected case:										
DSO	25.5	15.0	25.7	15.8	27.7	21.9	21.9	21.9	21.9	
DIO	148.2	147.3	137.8	85.4	188.9	141.5	141.5	141.5	141.5	
DPO	120.9	105.6	124.0	90.2	172.2	122.6	122.6	122.6	122.6	
Net trade cycle	52.8	56.7	39.5	11.0	44.4	40.9	40.9	40.9	40.9	

Calculate historical DSO, DIO, and DPO (we have done it in the Balance Sheet Input sheet)

Working capital

	Tesla Working capital (in mln \$)									
	31Dec2014	31Dec2015	31Dec2016	31Dec2017	30Jun2018	31Dec2018	31Dec2019	31Dec2020	31Dec2021	
(\$ in million)	Act	Act	Act	Act	Act	Fcst	Fcst	Fcst	Fcst	
Trade receivables	227	169	499	515	570	1 096	1 405	2 529	3 359	
Inventory	954	1 278	2 067	2 264	3 325	5 854	7 672	13 740	18 137	
Trade payables	778	916	1 860	2 390	3 030	5 071	6 645	11 900	15 709	
Net trade cycle	402	531	706	389	864	1 880	2 432	4 369	5 787	
Selected case:										
DSO	25.5	15.0	25.7	15.8	27.7	21.9	21.9	21.9	21.9	
DIO	148.2	147.3	137.8	85.4	188.9	141.5	141.5	141.5	141.5	
DPO	120.9	105.6	124.0	90.2	172.2	122.6	122.6	122.6	122.6	
Net trade cycle	52.8	56.7								40.9

To calculate Trade receivables in the forecast period:
 $\text{DSO} * \text{Revenues} / 360$
 To calculate Inventory in the forecast period:
 $\text{DIO} * \text{Cost of sales} / 360$
 To calculate Trade payables in the forecast period:
 $\text{DPO} * \text{Cost of sales} / 360$

Financing

Cover negative cash flows with:

Debt

50%

Equity

50%

Bond Yield as of Jul. 19

7.1%

Assume cost of debt remains constant throughout the entire forecast period

	Tesla Financing (in mln \$)									
	31Dec2014	31Dec2015	31Dec2016	31Dec2017	30Jun2018		31Dec2018	31Dec2019	31Dec2020	31Dec2021
(\$ in million)	Act	Act	Act	Act	Act		Fcst	Fcst	Fcst	Fcst
Long-term debt and capital leases, net of current	1 818.8	2 021.1	5 860.0	9 415.7	9 513.4		9 513.4	9 513.4	9 966.4	9 966.4
Interest expense	(100.9)	(118.9)	(198.8)	(471.3)	(313.1)	(362.3)	(675.5)	(675.5)	(707.6)	(707.6)
Interest rate	-5.5%	-5.9%	-3.4%	-5.0%	-6.6%		7.1%	7.1%	7.1%	7.1%

Financing

Cover negative cash flows with:

Debt

50%

Equity

50%

Bond Yield as of Jul. 19

7.1%

Interest expense = Long-term debt * Interest rate

	Tesla Financing (in mln \$)									
	31Dec2014	31Dec2015	31Dec2016	31Dec2017	30Jun2018		31Dec2018	31Dec2019	31Dec2020	31Dec2021
(\$ in million)	Act	Act	Act	Act	Act		Fcst	Fcst	Fcst	Fcst
Long-term debt and capital leases, net of current	1 818.8	2 021.1	5 860.0	9 415.7	9 513.4		9 513.4	9 513.4	9 966.4	9 966.4
Interest expense	(100.9)	(118.9)	(198.8)	(471.3)	(313.1)	(362.3)	(675.5)	(675.5)	(707.6)	(707.6)
Interest rate	-5.5%	-5.9%	-3.4%	-5.0%	-6.6%		7.1%	7.1%	7.1%	7.1%

Tesla valuation – Financing

Financing

Cover negative cash flows with:

Debt

50%

Equity

50%

Bond Yield as of Jul. 19

7.1%

Given that the company produced a negative cash flow, it will need additional financing during the forecast period. Here (on the left side), we assume such additional financing is covered with 50% debt and 50% equity. These percentages can be easily changed to test different hypothesis.

(\$ in million)

	31Dec2014	31Dec2015	31Dec2016	31Dec2017								
	Act	Act	Act	Act								
Long-term debt and capital leases, net of current	1 818.8	2 021.1	5 860.0	9 415.7								
Interest expense	(100.9)	(118.9)	(198.8)	(471.3)	(313.1)	(362.3)	(675.5)	(675.5)	(707.6)	(707.6)	(707.6)	(707.6)
Interest rate	-5.5%	-5.9%	-3.4%	-5.0%	-6.6%		7.1%	7.1%	7.1%	7.1%	7.1%	7.1%

Tesla Cash Flow (in mln \$)

Unlevered Free Cash Flow

Debt

Equity

2014	2015	2016	2017	2018 H1	2018 H2	2018	2019	2020	2021	2022	2023
Act	Act	Act	Act	Act	Fcst	Fcst	Fcst	Fcst	Fcst	Fcst	Fcst
					1 232.1		(906.1)	8 291.6	7 257.6	10 379.0	3 914.7
					-		453.0	-	-	-	-
					-		453.0	-	-	-	-

Tesla valuation – WACC

WACC

Risk-free rate	2.82%
Market risk premium	6.00%
Beta (as of 10 Jan 2018)	0.83
Tax rate	30%
Cost of equity	7.8%
Current bond Yield as of 12 Jan	7.1%

Calculate cost of equity using the CAPM:
Risk-free + Beta * Market risk premium

	Tesla WACC calculation (in mln \$)									
	31Dec2014	31Dec2015	31Dec2016	31Dec2017	30Jun2018	31Dec2018	31Dec2019	31Dec2020	31Dec2021	31Dec2022
(\$ in million)	Act	Act	Act	Act	Act	Fcst	Fcst	Fcst	Fcst	Fcst
Debt	2430	2649	6844	10212	11617	11 617	12 070	12 070	12 070	12 070
Equity	912	1084	5538	5235	5267	4 126	4 567	5 039	6 019	7 604
Debt / (Debt + Equity)	73%	71%	55%	66%	69%	74%	73%	71%	67%	61%
Equity / (Debt + Equity)	27%	29%	45%	34%	31%	26%	27%	29%	33%	39%
Cost of equity	7.8%	7.8%	7.8%	7.8%	7.8%	7.8%	7.8%	7.8%	7.8%	7.8%
Cost of debt	7.1%	7.1%	7.1%	7.1%	7.1%	7.1%	7.1%	7.1%	7.1%	7.1%
WACC	5.7%	5.8%	6.2%	5.9%	5.9%	5.7%	5.7%	5.8%	5.9%	6.1%

Tesla valuation – WACC

WACC

Risk-free rate	2.82%
Market risk premium	6.00%
Beta (as of 10 Jan 2018)	0.83
Tax rate	30%
Cost of equity	7.8%
Current bond Yield as of 12 Jan	7.1%

Use Tesla's current YTM as cost of debt

(\$ in million)	Tesla WACC calculation (in mln \$)									
	31Dec2014	31Dec2015	31Dec2016	31Dec2017	30Jun2018	31Dec2018	31Dec2019	31Dec2020	31Dec2021	31Dec2022
	Act	Act	Act	Act	Act	Fcst	Fcst	Fcst	Fcst	Fcst
Debt	2430	2649	6844	10212	11617	11 617	12 070	12 070	12 070	12 070
Equity	912	1084	5538	5235	5267	4 126	4 567	5 039	6 019	7 604
Debt / (Debt + Equity)	73%	71%	55%	66%	69%	74%	73%	71%	67%	61%
Equity / (Debt + Equity)	27%	29%	45%	34%	31%	26%	27%	29%	33%	39%
Cost of equity	7.8%	7.8%	7.8%	7.8%	7.8%	7.8%	7.8%	7.8%	7.8%	7.8%
Cost of debt	7.1%	7.1%	7.1%	7.1%	7.1%	7.1%	7.1%	7.1%	7.1%	7.1%
WACC	5.7%	5.8%	6.2%	5.9%	5.9%	5.7%	5.7%	5.8%	5.9%	6.1%

Tesla valuation – WACC

WACC

Risk-free rate	2.82%
Market risk premium	6.00%
Beta (as of 10 Jan 2018)	0.83
Tax rate	30%
Cost of equity	7.8%
Current bond Yield as of 12 Jan	7.1%

Calculate the portion of debt and equity financing

(\$ in million)						Tesla WACC calculation (in mln \$)				
	31Dec2014	31Dec2015	31Dec2016	31Dec2017	30Jun2018	31Dec2018	31Dec2019	31Dec2020	31Dec2021	31Dec2022
	Act	Act	Act	Act	Act	Fcst	Fcst	Fcst	Fcst	Fcst
Debt	2430	2649	6844	10212	11617	11 617	12 070	12 070	12 070	12 070
Equity	912	1084	5538	5235	5267	4 126	4 567	5 039	6 019	7 604
Debt / (Debt + Equity)	73%	71%	55%	66%	69%	74%	73%	71%	67%	61%
Equity / (Debt + Equity)	27%	29%	45%	34%	31%	26%	27%	29%	33%	39%
Cost of equity	7.8%	7.8%	7.8%	7.8%	7.8%	7.8%	7.8%	7.8%	7.8%	7.8%
Cost of debt	7.1%	7.1%	7.1%	7.1%	7.1%	7.1%	7.1%	7.1%	7.1%	7.1%
WACC	5.7%	5.8%	6.2%	5.9%	5.9%	5.7%	5.7%	5.8%	5.9%	6.1%

WACC

Risk-free rate	2.82%
Market risk premium	6.00%
Beta (as of 10 Jan 2018)	0.83
Tax rate	30%
Cost of equity	7.8%
Current bond Yield as of 12 Jan	7.1%

$$\text{WACC} = E / (D+E) * \text{Cost of equity} + D / (D+E) * \text{Cost of debt} * (1-t)$$

	Tesla WACC calculation (in mln \$)									
	31Dec2014	31Dec2015	31Dec2016	31Dec2017	30Jun2018	31Dec2018	31Dec2019	31Dec2020	31Dec2021	31Dec2022
(\$ in million)	Act	Act	Act	Act	Act	Fcst	Fcst	Fcst	Fcst	Fcst
Debt	2430	2649	6844	10212	11617	11 617	12 070	12 070	12 070	12 070
Equity	912	1084	5538	5235	5267	4 126	4 567	5 039	6 019	7 604
Debt / (Debt + Equity)	73%	71%	55%	66%	69%	74%	73%	71%	67%	61%
Equity / (Debt + Equity)	27%	29%	45%	34%	31%	26%	27%	29%	33%	39%
Cost of equity	7.8%	7.8%	7.8%	7.8%	7.8%	7.8%	7.8%	7.8%	7.8%	7.8%
Cost of debt	7.1%	7.1%	7.1%	7.1%	7.1%	7.1%	7.1%	7.1%	7.1%	7.1%
WACC	5.7%	5.8%	6.2%	5.9%	5.9%	5.7%	5.7%	5.8%	5.9%	6.1%

A satellite view of Earth from space, showing the curvature of the planet and city lights at night. The word "Output" is overlaid in white text on the left side.

Output

P&L

	Tesla P&L (in mln \$)								
(\$ in million)	2014 Act	2015 Act	2016 Act	2017 Act	2018 H1 Act	2018 H2 Fcst	2018 Fcst	2019 Fcst	2020 Fcst
Revenues	3 198	4 046	7 000	11 759	7 411	10 577	17 988	23 057	41 515
Cost of sales	(2 317)	(3 123)	(5 401)	(9 536)	(6 336)	(8 555)	(14 891)	(19 513)	(34 946)
Gross profit	882	924	1 599	2 222	1 075	2 022	3 097	3 543	6 568
Operating expenses	(1 068)	(1 640)	(2 267)	(3 855)	(2 294)	(2 801)	(5 095)	(2 880)	(5 186)
EBIT	(187)	(717)	(667)	(1 632)	(1 218)	(779)	(1 997)	663	1 382
Interest expenses/income	(98)	(159)	(79)	(577)	(290)	(362)	(675)	(675)	(708)
EBT	(285)	(876)	(746)	(2 209)	(1 508)	(1 141)	(2 673)	(12)	675
Taxes	(9)	(13)	(27)	(32)	(19)	-	-	-	(202)
Minority interest	-	-	98	279	100	-	-	-	-
Net Income	(294)	(889)	(675)	(1 961)	(1 427)	(1 141)	(2 673)	(12)	472

Fill in the P&L sheet with available information and calculate Taxes. We assume that when EBT is negative, the company will pay 0 corporate income taxes.

Tesla valuation – Balance sheet

Balance Sheet

(\$ in million)	Tesla BS (in mln \$)																Assumption
	31Dec2014	31Dec2015	31Dec2016	31Dec2017	30Jun2018	31Dec2018	31Dec2019	31Dec2020	31Dec2021	31Dec2022	31Dec2023	31Dec2024	31Dec2025	31Dec2026	31Dec2027	31Dec2028	
	Act	Act	Act	Act	Act	Fcst	Fcst	Fcst	Fcst	Fcst	Fcst	Fcst	Fcst	Fcst	Fcst	Fcst	
Cash	1 906	1 197	3 393	3 368	2 236	3 106	2 630	10 426	17 188	27 072	30 491	34 427	37 067	40 019	42 359	44 961	Cash flow sheet
Restricted cash and securities	18	23	106	155	147	147	147	147	147	147	147	147	147	147	147	147	Stays flat
Trade receivables	227	169	499	515	570	1 096	1 405	2 529	3 359	4 337	4 651	4 991	5 183	5 383	5 502	5 625	Working capital sheet
Inventory	954	1 278	2 067	2 264	3 325	5 854	7 672	13 740	18 137	23 322	24 997	26 813	27 834	28 900	29 544	30 205	Working capital sheet
Prepaid expenses	76	116	194	268	422	575	738	1 328	1 763	2 277	2 442	2 620	2 721	2 826	2 889	2 953	Grows as a % of revenues
as a % of revenues	2.4%	2.9%	2.8%	2.3%	5.7%	3.2%	3.2%	3.2%	3.2%	3.2%	3.2%	3.2%	3.2%	3.2%	3.2%	3.2%	
Operating lease vehicles	767	1 791	3 134	4 117	2 282	2 282	2 282	2 282	2 282	2 282	2 282	2 282	2 282	2 282	2 282	2 282	Stays flat
Solar energy systems leased	-	-	5 920	6 347	6 340	6 340	6 340	6 340	6 340	6 340	6 340	6 340	6 340	6 340	6 340	6 340	Stays flat
PP&E	1 829	3 403	5 983	10 028	10 969	14 499	18 945	22 896	25 438	26 962	28 445	29 866	31 201	32 425	33 508	34 418	PP&E sheet
Intangible assets	-	13	376	362	365	365	365	365	365	365	365	365	365	365	365	365	Stays flat
Other assets	55	78	991	1 232	1 254	2 492	3 194	5 751	7 636	9 861	10 574	11 347	11 783	12 238	12 510	12 789	Stays flat
as a % of revenues	1.7%	1.9%	14.2%	10.5%	16.9%										13.9%	13.9%	
Total assets	5 831	8 068	22 664	28 655	27 910										135 446	140 086	
Accounts payable	778	916	1 860	2 390	3 030										25 589	26 161	Working capital sheet
Accrued liabilities	269	423	1 210	1 731	1 815										11 484	11 741	Grows as a % of revenues
as a % of revenues	8.4%	10.4%	17.3%	14.7%	24.5%										12.7%	12.7%	
Deferred revenue	192	424	763	1 015	576										8 129	8 311	Grows as a % of revenues
as a % of revenues	6.0%	10.5%	10.9%	8.6%	7.8%										9.0%	9.0%	
Resale value guarantees	-	137	180	787	674										3 806	3 891	Grows as a % of revenues
as a % of revenues	0.0%	3.4%	2.6%	6.7%	9.1%										4.2%	4.2%	
Customer deposits	258	283	664	854	942										7 180	7 341	Grows as a % of revenues
as a % of revenues	8.1%	7.0%	9.5%	7.3%	12.7%										8.0%	8.0%	
Long-term debt	2 430	2 649	6 844	10 212	11 617										12 070	12 070	Financing sheet
Other liabilities	993	2 152	5 605	6 430	3 988										49 443	50 546	Grows as a % of revenues
as a % of revenues	31.0%	53.2%	80.1%	54.7%	53.8%										54.7%	54.7%	
Total liabilities	4 919	6 984	17 126	23 421	22 643										117 700	120 060	
Equity	912	1 084	5 538	5 235	5 267	4 126	4 567	5 039	6 019	7 604	9 360	11 303	13 356	15 523	17 746	20 026	
Total liabilities & equity	5 831	8 068	22 664	28 655	27 910	36 756	43 716	65 804	82 655	102 965	110 733	119 198	124 922	130 923	135 446	140 086	

Fill in the Balance Sheet with the items we have already forecasted. Model the rest of the Balance Sheet as flat or as items growing in sync with revenues. If we assume an item grows in sync with revenues, then this means it is an essential part of the firm's operations and the company must increase it to expand its business.

Check

Tesla valuation – Cash flow

Cash Flow

Start the cash flow calculation by calculating Operating taxes, which would allow us to calculate NOPAT (Net Operating Profit After Tax)

						Tesla Cash Flow (in mln \$)			
	2014					2018	2019	2020	2021
(\$ in million)	Act	Act	Act	Act	Fcst	Fcst	Fcst	Fcst	Fcst
EBIT		(717)	(667)	(1 632)	(1 218)	(779)	(1 997)	663	1 382
Operating taxes (30%)		(13)	(27)	(32)	(19)	-	(19)	(199)	(415)
NOPAT		(730)	(694)	(1 664)	(1 238)	(779)	(2 017)	464	968
Add-back D&A		423	947	1 166	901	644	1 545	1 353	1 732
Gross Cash Flow		(307)	253	(497)	(336)	(135)	(471)	1 818	2 700
Trade receivables		58	(330)	(16)	(54)	(526)	(581)	(309)	(1 125)
Inventory		(324)	(790)	(196)	(1 061)	(2 530)	(3 591)	(1 817)	(6 068)
Accounts payable		138	944	530	640	2 040	2 680	1 574	5 255
Investments in Working Capital		(128)	(176)	318	(475)	(1 016)	(1 491)	(552)	(1 937)
Capex		(1 997)	(3 527)	(5 211)	(1 843)	(4 173)	(6 017)	(5 799)	(5 683)
Other assets		(1 105)	(8 700)	(1 760)	1 671	(1 391)	280	(864)	(3 147)
Other liabilities		1 708	5 002	2 397	(2 822)	7 947	5 125	4 492	16 360
Unlevered Free Cash Flow		(1 830)	(7 147)	(4 753)	(3 806)	1 232	(2 574)	(906)	8 292
Interest expenses		(159)	(79)	(577)	(290)	(362)	(652)	(675)	(708)
Delta Financial liabilities		219	4 195	3 368	1 404	-	1 404	453	-
Delta equity/Other equity movements		1 061	5 129	1 658	1 460	-	1 460	453	-
Tax adjustment		-	-	-	-	-	-	199	212
Minority interest		-	98	279	100	-	100	-	-
Net Cash Flow		(709)	2 196	(25)	(1 131)	870	(262)	(476)	7 796

Tesla valuation – Cash flow

Cash Flow

	2014	2015	2016	2017	2018	2019	2020	2021	2021
	Act	Act	Act	Act	Act	Act	Act	Act	Fcst
(\$ in million)									
EBIT		(717)	(667)	(1 632)					2 108
Operating taxes (30%)		(13)	(27)	(32)					(632)
NOPAT		(730)	(694)	(1 664)					1 476
Add-back D&A		423	947	1 166	901	644	1 545	1 353	2 037
Gross Cash Flow		(307)	253	(497)	(336)	(135)	(471)	1 818	2 700
Trade receivables		58	(330)	(16)	(54)	(526)	(581)	(309)	(829)
Inventory		(324)	(790)	(196)	(1 061)	(2 530)	(3 591)	(1 817)	(4 397)
Accounts payable		138	944	530	640	2 040	2 680	1 574	3 808
Investments in Working Capital		(128)	(176)	318	(475)	(1 016)	(1 491)	(552)	(1 937)
Capex		(1 997)	(3 527)	(5 211)	(1 843)	(4 173)	(6 017)	(5 799)	(4 579)
Other assets		(1 105)	(8 700)	(1 760)	1 671	(1 391)	280	(864)	(3 147)
Other liabilities		1 708	5 002	2 397	(2 822)	7 947	5 125	4 492	12 062
Unlevered Free Cash Flow		(1 830)	(7 147)	(4 753)	(3 806)	1 232	(2 574)	(906)	8 292
Interest expenses		(159)	(79)	(577)	(290)	(362)	(652)	(675)	(708)
Delta Financial liabilities		219	4 195	3 368	1 404	-	1 404	453	-
Delta equity/Other equity movements		1 061	5 129	1 658	1 460	-	1 460	453	-
Tax adjustment		-	-	-	-	-	-	199	212
Minority interest		-	98	279	100	-	100	-	-
Net Cash Flow		(709)	2 196	(25)	(1 131)	870	(262)	(476)	6 762

Add-back D&A to obtain Gross Cash Flow. D&A is a non-cash expense.

Cash Flow

	Tesla Cash Flow (in mln \$)									
(\$ in million)	2014 Act	2015 Act	2016 Act	2017 Act	2018 H1 Act	2018 H2 Fcst	2018 Fcst	2019 Fcst	2020 Fcst	2021 Fcst
EBIT		(717)	(667)	(1 632)	(1 218)	(779)	(1 997)	663	1 382	2 108
Operating taxes (30%)		(13)	(27)	(32)	(19)	-	(19)	(199)	(415)	(632)
NOPAT		(730)	(694)	(1 664)	(1 238)	(779)	(2 017)	464	968	1 476
Add-back D&A		423	947	1 166	901	644	1 545	1 353	1 732	2 037
Gross Cash Flow		(307)	253	(497)	(336)	(135)	(471)	1 818	2 700	3 513
Trade receivables		58	(330)	(16)	(54)	(526)	(581)	(309)	(1 125)	(829)
Inventory		(324)	(790)	(196)	(1 061)	(2 530)	(3 591)	(1 817)	(6 068)	(4 397)
Accounts payable		138	944	530	640	2 040	2 680	1 574	5 255	3 808
Investments in Working Capital		(128)	(176)	318	(475)	(1 016)	(1 491)	(552)	(1 937)	(1 418)
Capex		(1 997)	(3 527)	(5 211)	(1 843)	(4 173)	(6 017)	(5 799)	(5 683)	(4 579)
Other assets		(1 105)	(8 700)	(1 760)	1 671	(1 391)	280	(864)	(3 147)	(2 321)
Other liabilities		1 708	5 002	2 397	(2 822)	7 947	5 125	4 492	16 360	12 062
Unlevered Free Cash Flow		(1 830)	(7 147)	(4 753)	(3 806)	1 232	(2 574)	(906)	8 292	7 258
Interest expenses										
Delta Financial liabilities										
Delta equity/Other equity movements										
Tax adjustment										
Minority interest										
Net Cash Flow		(709)	2 196	(25)	(1 131)	870	(262)	(476)	7 796	6 762

Unlevered Free Cash Flow = Gross Cash Flow +(-) Investments in Working capital – Capex +(-) Change in Other assets +(-) Change in Other liabilities

Tesla valuation – Cash flow

Cash Flow

	Tesla Cash Flow (in mln \$)									
(\$ in million)	2014 Act	2015 Act	2016 Act	2017 Act	2018 H1 Act	2018 H2 Fcst	2018 Fcst	2019 Fcst	2020 Fcst	2021 Fcst
EBIT		(717)	(667)	(1 632)	(1 218)	(779)	(1 997)	663	1 382	2 108
Operating taxes (30%)		(13)	(27)	(32)	(19)	-	(19)	(199)	(415)	(632)
NOPAT		(730)	(694)	(1 664)	(1 238)	(779)	(2 017)	464	968	1 476
Add-back D&A		423	947	1 166	901	644	1 545	1 353	1 732	2 037
Gross Cash Flow		(307)	253	(497)	(336)	(135)	(471)	1 818	2 700	3 513
Trade receivables		5								
Inventory		(32)								
Accounts payable		13								
Investments in Working Capital		(12)								
Capex		(1 99)								
Other assets		(1 10)								
Other liabilities		1 708	5 002	2 397	(2 822)	7 947	5 125	4 492	16 360	12 062
Unlevered Free Cash Flow		(1 830)	(7 147)	(4 753)	(3 806)	1 232	(2 574)	(906)	8 292	7 258
Interest expenses		(159)	(79)	(577)	(290)	(362)	(652)	(675)	(708)	(708)
Delta Financial liabilities		219	4 195	3 368	1 404	-	1 404	453	-	-
Delta equity/Other equity movements		1 061	5 129	1 658	1 460	-	1 460	453	-	-
Tax adjustment		-	-	-	-	-	-	199	212	212
Minority interest		-	98	279	100	-	100	-	-	-
Net Cash Flow		(709)	2 196	(25)	(1 131)	870	(262)	(476)	7 796	6 762

To reconcile Unlevered Free Cash Flow and Net Cash Flow, we must consider all items related to the financial structure of the firm (interest expenses, financial liabilities, and equity) and adjust for the difference between taxes in the P&L and Operating taxes we calculated here.

Tesla valuation – DCF

Assuming a 2% perpetuity growth rate
(growth rate after the explicit forecast period). Some industry practitioners use
3% alternatively. This input is easily changed and tested.

DCF Valuation

g (Perpetuity growth)

2%

	2014 Act	2015 Act	2016 Act	2017 Act	2018 H1 Act	2018 H2 Fcst	2019 Fcst	2020 Fcst	2021 Fcst	2022 Fcst	2023 Fcst	2024 Fcst	2025 Fcst	2026 Fcst	2027 Fcst	2028 Fcst
(\$ in million)						0.5	1.5	2.5	3.5	4.5	5.5	6.5	7.5	8.5	9.5	10.5
Unlevered Free Cash Flow						1 842	(736)	9 023	7 799	9 834	2 706	3 016	1 377	1 440	506	491
Continuing value																11 604
Discount factor (WACC)						5.7%	5.7%	5.7%	5.8%	5.9%	6.0%	6.1%	6.1%	6.2%	6.3%	6.3%
Present value of UFCF						1 791	(677)	7 847	6 400	7 596	1 965	2 055	880	863	284	258
Present value of CV																6 098

Perpetuity Growth Rate-Based Valuation

Total PV of Cash Flows	29 263
Continuing Value	11 604
PV of Continuing Value	6 098
Enterprise Value	35 361
+Cash	2 236
-Financial liabilities	(11 617)
Equity Value	25 981
Number of shares outstanding (as of 14 Jan 2018)	168
Price per share	154.6

Tesla valuation – DCF

DCF Valuation

g (Perpetuity growth)

2%

	2014	2015	2016	2017	2018 H1	0.5	1.5	2.5	3.5	4.5	5.5	6.5	7.5	8.5	9.5	10.5
(\$ in million)	Act	Act	Act	Act	Act	2018 H2	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
						Fcst	Fcst	Fcst	Fcst	Fcst	Fcst	Fcst	Fcst	Fcst	Fcst	Fcst
Unlevered Free Cash Flow						1 842	(736)	9 023	7 799	9 834	2 706	3 016	1 377	1 440	506	491
Continuing value																11 604
Discount factor (WACC)						5.7%	5.7%	5.7%	5.8%	5.9%	6.0%	6.1%	6.1%	6.2%	6.3%	6.3%
Present value of UFCF						1 791	(677)	7 847	6 400	7 596	1 965	2 055	880	863	284	258
Present value of CV																6 098

Perpetuity Growth Rate-Based Valuation

Total PV of Cash Flows	29 263
Continuing Value	11 604
PV of Continuing Value	6 098
Enterprise Value	35 361
+Cash	2 236
-Financial liabilities	(11 617)
Equity Value	25 981
Number of shares outstanding (as of 14 Jan 2018)	168
Price per share	154.6

Calculating Continuing Value
(what the firm's business is worth
after the explicit forecast period)

Tesla valuation – DCF

DCF Valuation

g (Perpetuity growth)

2%

	2014 Act	2015 Act	2016 Act	2017 Act	2018 H1 Act	0.5 2018 H2 Fcst	1.5 2019 Fcst	2.5 2020 Fcst	3.5 2021 Fcst	4.5 2022 Fcst	5.5 2023 Fcst	6.5 2024 Fcst	7.5 2025 Fcst	8.5 2026 Fcst	9.5 2027 Fcst	10.5 2028 Fcst
(\$ in million)																
Unlevered Free Cash Flow						1 842	(736)	9 023	7 799	9 834	2 706	3 016	1 377	1 440	506	491
Continuing value																11 604
Discount factor (WACC)						5.7%	5.7%	5.7%	5.8%	5.9%	6.0%	6.1%	6.1%	6.2%	6.3%	6.3%
Present value of UFCF						1 791	(677)	7 847	6 400	7 596	1 965	2 055	880	863	284	258
Present value of CV																6 098

Perpetuity Growth Rate-Based Valuation

Total PV of Cash Flows	29 263
Continuing Value	11 604
PV of Continuing Value	6 098
Enterprise Value	35 361
+Cash	2 236
-Financial liabilities	(11 617)
Equity Value	25 981
Number of shares outstanding (as of 14 Jan 2018)	168
Price per share	154.6

Calculating present value of Continuing Value (we are valuing the company today, hence we must discount the company's Continuing Value)

Tesla valuation – DCF

DCF Valuation

g (Perpetuity growth)

2%

	2014	2015	2016	2017	2018 H1	0.5	1.5	2.5	3.5	4.5	5.5	6.5	7.5	8.5	9.5	10.5
(\$ in million)	Act	Act	Act	Act	Act	2018 H2	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
						Fcst	Fcst	Fcst	Fcst	Fcst	Fcst	Fcst	Fcst	Fcst	Fcst	Fcst
Unlevered Free Cash Flow						1 842	(736)	9 023	7 799	9 834	2 706	3 016	1 377	1 440	506	491
Continuing value																11 604
Discount factor (WACC)						5.7%	5.7%	5.7%	5.8%	5.9%	6.0%	6.1%	6.1%	6.2%	6.3%	6.3%
Present value of UFCF						1 791	(677)	7 847	6 400	7 596	1 965	2 055	880	863	284	258
Present value of CV																6 098

Perpetuity Growth Rate-Based Valuation

Total PV of Cash Flows	JM(H10:S10)
Continuing Value	11 604
PV of Continuing Value	6 098
Enterprise Value	35 361
+Cash	2 236
-Financial liabilities	(11 617)
Equity Value	25 981
Number of shares outstanding (as of 14 Jan 2018)	168
Price per share	154.6

Calculating the sum of all discounted cash flows during the explicit forecast period

Enterprise Value = Present value of cash flows + Present value of Continuing value

Perpetuity Growth Rate-Based Valuation	
Total PV of Cash Flows	29 263
Continuing Value	11 604
PV of Continuing Value	6 098
Enterprise Value	35 361
+Cash	2 236
-Financial liabilities	(11 617)
Equity Value	25 981
Number of shares outstanding (as of 14 Jan 2018)	168
Price per share	154.6

$$\text{Equity Value} = \text{Enterprise Value} + \text{Cash} - \text{Financial Liabilities}$$

Perpetuity Growth Rate-Based Valuation	
Total PV of Cash Flows	29 263
Continuing Value	11 604
PV of Continuing Value	6 098
Enterprise Value	35 361
+Cash	2 236
-Financial liabilities	(11 617)
Equity Value	JM(F17:F19)
Number of shares outstanding (as of 14 Jan 2018)	168
Price per share	154.6

Divide Equity value by Total number of shares outstanding to obtain Price per share

Perpetuity Growth Rate-Based Valuation	
Total PV of Cash Flows	29 263
Continuing Value	11 604
PV of Continuing Value	6 098
Enterprise Value	35 361
+Cash	2 236
-Financial liabilities	(11 617)
Equity Value	25 981
Number of shares outstanding (as of 14 Jan 2018)	168
Price per share	=F20/F21